Appl. No. 10/650,409
Amdt. dated March 12, 2008
Reply to Office action of Dec. 10, 2007

PATENT

REMARKS

This paper is in response to the Office Action of December 10, 2007. The due date for response extends to March 10, 2008. In view of the clarifying amendments, the Applicant respectfully requests reconsideration.

Examiner Interview

An Examiner Interview was conducted with Examiner Kerr on February 19, 2008. A discussion was had regarding the newly cited art and combined references, as they relate to the pending claims. Specifically, a discussion was had regarding Varma et al. (US 2004/0213419 A1), Oh et al. (US 5,353,376) and Brandstein et al. (US 5,581,620). It was noted to the Examiner that the applicants had invented prior to the filing date of Varma et al., and a Declaration was going to be submitted to remove the citation of Varma et al., as presently applied.

Declaration under 37 CFR 1.131

Submitted with this response is a declaration under 37 CFR 1.131, which is being submitted herewith to antedate Varma et al. Per MPEP 715.04, an RCE is being filed with this response to enable consideration and entry of the declaration after final.

Rejection

The present office action is final, although new art was applied to formulate a new Section 103 rejection. Claims 7-13 and 25-39 were rejected under 35 USC 103(a), as being unpatentable over Oh et al. (US 5,353,376), Brandstein et al. (US 5,581,620) and further in view of Varma et al. (US 2004/0213419 A1). This rejection is respectfully traversed.

The teachings of Oh et al. are directed toward speech acquisition and enhancement. Oh et al. uses a linear array of sensors, which are placed in the interior vehicular compartment to detect spoken input. Col. 1, lines 51-55. Oh et al. is focused on taking advantage of the "near field" configuration offered by close spaces, such as vehicles. As noted on Col. 2, line

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67 to Col. 3, line 5, Oh et al. "assumes" a position of the speaker. The calculations provided in columns 3-4, which are relied on by the Office, are in fact starting with an assumed position of the speaker. Thus, any enhancing or canceling, is done with reference to the assumed position. It is this assumed position, therefore, which enables Oh et al. to limit the GSM beamformer 14 for "near-field" and wide-band signals. As explained on Col. 4, lines 63-68, the "minimum distance between the speaker and microphones 10 is greater than twice the total array aperture, it is reasonable to assume the far-field condition." Oh et al. therefore requires the "assumed" position of the speaker, and then "assumes" that the position is far-field. Col. 4, lines 63-68. Still further, Oh et al. teaches an "adapt-and-stop" process for collecting the noise. As noted in Col. 5, lines 12-43, the system requires the user to push a button (or the like) before speaking to allow capture of the noise through an ANC filter adaptation, and then after a few seconds the adaptation stops and a green light indicates to the user that speaking/dialing is allowed.

The teachings of Brandstein et al., on the other hand, simply teach a method of beamforming. However, one skilled in the art would not look to Brandstein et al., as the methods of Oh et al. require assumptions of speaker position, require assumptions of near-field usage, and require "pre-use" adaptation. The teachings of Brandstein, therefore, would not work in the context of Oh et al.'s primary teachings. Indeed, if movement of the user were allowed as in Brandstein et al., the required assumptions of Oh et al. would no longer apply and the formula algorithms would be void.

It is respectfully submitted that claim language is provided in the independent claims to render the independent claims patentable over the teachings of Oh et al. and Brandstein. Additionally, given that Varma et al. has been antedated, the teachings of Oh et al. (directed to near-field/close spaces) and Brandstein (defining a generic beamforming algorithm) do not render the claimed invention obvious. For reference, claim 7 recites that the microphone sensor array is of a game controller and is used during game play. In contrast to Oh et al., the user does adaptation before use, and use cannot occur until a green light indicates. Also, far-field is required by Oh et al., and based on normal operation of a controller during game play (as claimed), the user can move the controller freely in and out, between far or near fields. Claim 25 recites that the microphone array is affixed to the portable consumer device, and the portable consumer device is configured to move in positions that are independent from positions of a user during active use. Claim 31 recites that the microphone array affixed to a

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video game controller. Claim 35 recites that the microphone array is installed on a game controller.

Further, because Oh et al. relies on assumptions and the noise adaptation occurs before use, the claim language provided below in regard to claims 7, 25, 31, and 35 are not taught nor suggested by the cited art. Again, certain sections of the independent claims are highlighted, to provide context to the differences between what the prior art teaches and what is claimed by the Applicant.

Independent claim 7 recites:

> ...periodically monitoring an acoustic set-up associated with the audio signal; and
>
> calibrating both a value of the first filter and a value of the second filter based upon the acoustic set-up so as to **actively** update tracking and steering toward the target signal component **during game play**.

Independent claim 25 recites:

> a microphone array affixed to the portable consumer device, the microphone array configured to capture audio signals, wherein a listening direction associated with the microphone array is **actively** adjusted **during active use** through the logic configured to enhance the target audio signal.

Independent claim 31 recites:

> ...a computing system including circuitry configured to process the audio signal when received by the microphone array of the game controller, the computing system including filtering and enhancing logic that is periodically monitored and **actively calibrated** to filter the noise and enhance the target audio signal as a position of the video game controller and a position of a source of the target audio signal change in position **during game play**, wherein the filtering of the noise includes processing is a plurality of filter-and-sum operations at the computing device.
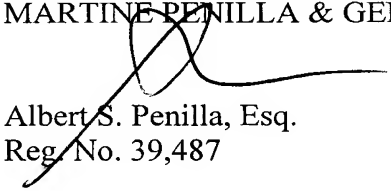
Independent claim 35 recites:

> ...circuitry configured to adjust a listening direction **during game play** according to filters computed through an adaptive array calibration scheme,
>
> wherein the noise reduced signal is generated using any **active** adjustment in the listening direction **during game play**.

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In view of the forgoing, it is submitted that the independent claims are patentable over the cite art of record. The dependent claims are also submitted to be patentable over the cited art for at least the same reasons the independent claims are believed to be patentable. Thus, in view of the foregoing, the Applicant respectfully requests that the Section 103 rejections be withdrawn.

If the Examiner has any questions concerning the present amendment, the Examiner is kindly requested to contact the undersigned at (408) 749-6903. If any other fees are due in connection with filing this amendment, the Commissioner is also authorized to charge Deposit Account No. 50-0805 (Order No SONYP028). A duplicate copy of the transmittal is enclosed for this purpose.

Respectfully submitted,
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